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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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IBM CORPORATION DEPT T81/062
3039 CORNWALLIS ROAD
RTP, NC 27709

EXAMINER	
WU, ALLEN S	

ART UNIT	PAPER NUMBER
2131	

DATE MAILED: 11/10/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/458,928	PEYRAVIAN ET AL.	
	Examiner	Art Unit	
	Allen S. Wu	2131	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 February 2000* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *10 December 1999* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *4* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-10, 13-23 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Haber et al, US Patent 5,136,647, in view of Takura et al.

As per claims 1 and 14, Haber et al, discloses a method for time stamping a document (col 2, ln 33-49) comprising of a time stamp receipt (certificate, col 3 ln 1-5) including identifying data associated with the document (identity of the author, col 4 ln 3-33) and a time indication (current time, col 4 ln 3-33.

Furthermore, Haber et al teaches the binding of the information as described above and the outside agency being able to obtain the current time (adding digital data signifying the current time, col 2 ln 59-66). Haber et al does not teach computing the age of said time stamp receipt based on said time indication. However, Takura et al, teaches computing the age of the time stamp receipt (checks the time associated with the request by comparing the current

time, page 88; Takura et al does not explicitly state computing the age. However, the age is the difference of the current time and an initial time, which is the time on the time stamp. Therefore, checking the time by comparing the time in the time stamp receipt to the current time is inherently a computation of the age of the time stamp receipt). Computing the age of the time stamp receipt involves comparing the time indicated in the receipt with the current time, which is comparing a form of digital data. Methods of comparing digital data are well known in the art. It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to combine the teachings of Takura et al within the teachings of Haber et al because it would have reduced the amount of communication needed for the authentication of the time stamp receipt. By binding information, such as computed age, in the time stamp receipt, allows for the time stamp to be authenticated, by using information in the time stamp receipt, without further communication with a time stamping authority.

Furthermore, Haber et al teaches creating a time stamp receipt including identifying data associated with said document and a time indication (the TSA then prepares the receipt for document, col 6 ln 16-24). However, Haber et al does not teach creating an aged time stamp receipt. An aged time stamp receipt adds digital information representing the age of the time stamp receipt to the time stamp receipt. Takura et al, teaches computing the age of the time stamp receipt (checks the time associated with the request by comparing the current time, page 88; Takura et al does not explicitly state computing the age. However, the age is

the difference of the current time and an initial time, which is the time on the time stamp. Therefore, checking the time by comparing the time in the time stamp receipt to the current time is inherently a computation of the age of the time stamp receipt). Adding digital data, such as the computed age of the time stamp receipt taught by Takura et al, to the time stamp receipt of Haber et al will result in the creation of an aged time stamp receipt. It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to combine the teachings of Takura et al within the teachings of Haber et al because it would have reduced the amount of communication needed for the authentication of the time stamp receipt. By binding information, such as computed age, in the time stamp receipt, allows for the time stamp to be authenticated, by using information in the time stamp receipt, without further communication with a time stamping authority.

Furthermore, Haber et al discloses binding at said outside agency said identifying data (digital document, col 2 ln 61-66) and said time indication (adding digital data signifying the current time) using a cryptographic binding scheme (applying the agency's cryptographic signature scheme, col 2 ln 66-67 and col 3 ln 1-5). However, Haber et al does not teach binding of a digital representation of said age. Takura et al, teaches computing the age of the time stamp receipt (checks the time associated with the request by comparing the current time, page 88; Takura et al does not explicitly state computing the age. However, the age is the difference of the current time and an initial time, which is the time on the time

stamp. Therefore, checking the time by comparing the time in the time stamp receipt to the current time is inherently a computation of the age of the time stamp receipt). Binding information is a combining of digital data. The computed age is inherently digital data representing the age. By doing the comparison of the current time with the received time electronically, through a server, the times must exist in digital form. It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to combine the computed age of Takura et al within the system of Haber et al because it would have reduced the amount of communication needed for the authentication of the time stamp receipt. By binding information, such as computed age, in the time stamp receipt, allows for the time stamp to be authenticated, by using information in the time stamp receipt, without further communication with a time stamping authority.

In further regards to claim 1, Haber et al further teaches receiving a digital document, (col 2 ln 61-66) at an outside agency (TSA col 2 ln 61-66). Haber et al does not teach the outside agency receiving a time stamp receipt. However, Takura et al teaches receiving a time stamp receipt at different servers (forwards a copy of the request to each sign server with the time, page 88). Both the digital document and the time stamp receipt consist of digital data. The outside agency, being able to receive a type of digital data, could accept and process a time stamp receipt with methods well known in the art. It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to combine the teachings of Takura et al within the system of Haber et al because it would

have given the outside agency more information on the time exact time the document was created. Providing a time indication in addition to the digital document, in the form of a time receipt, gives the outside agency additional information to conclude the most accurate time the document was created and not just when the document was received by the agency.

In further regards to claim 14, Haber et al teaches creating a time stamp receipt including identifying data associated with said document and a time indication (the TSA then prepares the receipt for document, col 6 ln 16-24).and transmitting said time stamp receipt to an outside agency for certification (transmittal may be directly to the author or by way of the administrative TSA where the receipts are combined with or without further certification by the TSA, col 5 ln 1-16).

As per claims 2 and 15, Haber et al further discloses transmitting said binding information to a designated party (transmits the certificate back to the author or by way of the administrative, col 5 ln 4-16). Haber et al does not teach transmitting an aged time stamp receipt. An aged time stamp receipt adds digital information representing the age of the time stamp receipt to the time stamp receipt. Takura et al, teaches computing the age of the time stamp receipt (checks the time associated with the request by comparing the current time, page 88; Takura et al does not explicitly state computing the age. However, the age is the difference of the current time and an initial time, which is the time on the time

stamp. Therefore, checking the time by comparing the time in the time stamp receipt to the current time is inherently a computation of the age of the time stamp receipt). Adding the computed age of the time stamp receipt taught by Takura et al to the time stamp receipt of Haber et al will result in an aged time stamp receipt. Transmitting binding information consists of the transmission of digital data. An aged time stamp receipt consists of a collection of digital data. Transmitting digital data to a designated party is well known in the art. It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to combine the teachings of Takura et al within the teachings of Haber et al because it would have reduced the amount of communication needed for the authentication of the time stamp receipt. By binding information, such as computed age, in the time stamp receipt, allows for the time stamp to be authenticated, by using information in the time stamp receipt, without further communication with a time stamping authority.

As per claims 3 and 16, Haber et al further discloses the identifying data comprising a digital representation of at least a portion of said document (convert the digital document string to a unique number; col 3 ln 6-24; document is hashed, col 6 ln 1-15).

As per claims 4 and 17, Haber et al further discloses identifying data comprising a digital sequence derived by application of a deterministic function to

at least a portion of said document (reduced digital size by means of a deterministic function, col 3 ln 6-24).

As per claims 5 and 18, Haber et al further discloses digital sequence is a hash value derived by application of a one-way hashing function to at least a portion of said document (reduced digital size by means of a deterministic function which may, for example, be any one of a number of algorithms known in the art as "oneway hash functions", col 3 ln 6-24; document is hashed, col 6 ln 1-15).

As per claims 6 and 19, Haber et al further discloses the time stamp receipt further including an identification number associated with the document originator (the author whose system identification number is 172 in a 1000 member author universe, col 6 ln 8-15).

As per claims 7 and 20, Haber et al further discloses the time stamp receipt further including a sequential record number (TSA generates a time stamp receipt which includes, for example, a sequential receipt number, col 4 ln 3-33).

As per claims 8 and 21,Haber et al further disclose the step of validating said time stamp receipt at said outside agency (comparison of a number of relevant distributed certificates, col 3 ln 3-33).

As per claims 9 and 22,Haber et al further disclose the step of validating said time stamp receipt includes comparing (comparison of a number, col 4 ln 3-33), said identification number (author, A_k, col 4 ln 3-33) and sequential record number (TSA generates a time stamp receipt which includes, for example, a sequential receipt number, col 4 ln 3-33) with data maintained by the outside agency (comparison of a number of relevant distributed certificates, col 3 ln 3-33).

As per claims 10 and 23, Haber et al further discloses said binding step including the signing of a combination of said identifying data and said time indication using a digital cryptographic signature scheme (certifies the resulting separate time-stamped receipt with its own verifiable cryptographic signature, col 5 ln 1-16). Haber et al does not teach the signing of a digital representation of the age. Takura et al, teaches computing the age of the time stamp receipt (checks the time associated with the request by comparing the current time, page 88; Takura et al does not explicitly state computing the age. However, the age is the difference of the current time and an initial time, which is the time on the time stamp. Therefore, checking the time by comparing the time in the time stamp

receipt to the current time is inherently a computation of the age of the time stamp receipt). Any kind of digital data can be signed with a digital signature. The computed age is inherently digital data representing the age. By doing the comparison of the current time with the received time electronically, through a server, the times must exist in digital form. It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to combine the computed age of Takura et al within the system of Haber et al because it would have reduced the amount of communication needed for the authentication of the time stamp receipt. By binding information, such as computed age, in the time stamp receipt, allows for the time stamp to be authenticated, by using information in the time stamp receipt, without further communication with a time stamping authority.

As per claim 13 and 26, Haber et al further discloses binding step including an encryption on a combination of said identifying data and said time indication using a secret key controlled by said outside agency (cryptographic public key scheme to be employed in this example (generally known in the field as the "RSA", signature scheme), col 6 ln 25-35 and col 7 ln 1-24; Haber et al does not explicitly say the private key is controlled by outside agency. However, the RSA signature scheme is well known in the art to have a public and private key pair. Only the signing party knows the private key. Therefore a secret key controlled by the outside agency is to be inherent to the teachings of Haber et al).

Haber et al does not teach the combining of a digital representation of the age. Takura et al, teaches computing the age of the time stamp receipt (checks the time associated with the request by comparing the current time, page 88; Takura et al does not explicitly state computing the age. However, the age is the difference of the current time and an initial time, which is the time on the time stamp. Therefore, checking the time by comparing the time in the time stamp receipt to the current time is inherently a computation of the age of the time stamp receipt). Any kind of digital data can be combined in the computation of a message authorization code. The computed age is inherently digital data representing the age. By doing the comparison of the current time with the received time electronically, through a server, the times must exist in digital form. It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to combine the computed age of Takura et al within the system of Haber et al because it would have reduced the amount of communication needed for the authentication of the time stamp receipt. By binding information, such as computed age, in the time stamp receipt, allows for the time stamp to be authenticated, by using information in the time stamp receipt, without further communication with a time stamping authority.

3. Claims 11 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Haber et al, US Patent 5,136,647, in view of Takura et al as applied to claims 1 and 19 above, and further in view of Schneier.

As per claims 11 and 24, Haber et al discloses binding at said outside agency said identifying data (digital document, col 2 ln 61-66) and said time indication (adding digital data signifying the current time) using a cryptographic binding scheme (applying the agency's cryptographic signature scheme, col 2 ln 66-67 and col 3 ln 1-5). Haber et al does not teach a digital representation of a computed age being in the binding. Takura et al teaches computing the age of the time stamp receipt (checks the time associated with the request by comparing the current time, page 88; Takura et al does not explicitly state computing the age. However, the age is the difference of the current time and an initial time, which is the time on the time stamp. Therefore, checking the time by comparing the time in the time stamp receipt to the current time is inherently a computation of the age of the time stamp receipt). Binding information is a combining of digital data. The computed age is inherently digital data representing the age. By doing the comparison of the current time with the received time electronically, through a server, the times must exist in digital form. It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to combine the computed age of Takura et al within the system of Haber et al because it would have reduced the amount of communication needed for the authentication of the time stamp receipt. By binding information, such as computed age, in the time stamp receipt, allows for the time stamp to be authenticated, by using information in the time stamp receipt, without further communication with a time stamping authority.

Furthermore, Haber et al teaches a secret key controlled by said outside agency (cryptographic public key scheme to be employed in this example (generally known in the field as the "RSA", signature scheme), col 6 ln 25-35 and col 7 ln 1-24; Haber et al does not explicitly say the private key is controlled by outside agency. However, the RSA signature scheme is well known in the art to have a public and private key pair. Only the signing party knows the private key. Therefore a secret key controlled by the outside agency is to be inherent to the teachings of Haber et al). However the combination of Haber et al and Takura et al does not teach that the binding step includes computing a message authentication code on a combination of identifying data, said time indication, and said digital representation of said age using a secret key controlled by said outside agency. A message authentication code is a key dependent one-way hash function. Schneier teaches the generation of message authentication codes with secret keys (IBC-Hash, page 457-459). Binding information together is a manipulation of digital data to achieve one representation of the combination of data. To compute message authentication code, one manipulates the digital data, through the use of one-way hash functions and keys, in such a way as to develop a representation of the combination of data. It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to combine the teachings of Schneier within the combination of Haber et al and Takura et al because it would have provided a more secure form of binding information together. Message authentication codes are known to provide

authenticity without secrecy since only someone with the identical key can verify the hash.

4. Claims 12 and 25 rejected under 35 U.S.C. 103(a) as being unpatentable over Haber et al, US Patent 5,136,647, in view of Takura et al as applied to claims 1 and 19 above, and further in view of Levine et al, US Patent 6,393,566.

As per claims 12 and 25, Haber et al discloses binding at said outside agency said identifying data (digital document, col 2 ln 61-66) and said time indication (adding digital data signifying the current time) using a cryptographic binding scheme (applying the agency's cryptographic signature scheme, col 2 ln 66-67 and col 3 ln 1-5). Haber et al does not teach a digital representation of a computed age being in the binding. Takura et al teaches computing the age of the time stamp receipt (checks the time associated with the request by comparing the current time, page 88; Takura et al does not explicitly state computing the age. However, the age is the difference of the current time and an initial time, which is the time on the time stamp. Therefore, checking the time by comparing the time in the time stamp receipt to the current time is inherently a computation of the age of the time stamp receipt). Binding information is a combining of digital data. The computed age is inherently digital data representing the age. By doing the comparison of the current time with the received time electronically, through a server, the times must exist in digital form. It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to combine the computed age of Takura et al within the

system of Haber et al because it would have reduced the amount of communication needed for the authentication of the time stamp receipt. By binding information, such as computed age, in the time stamp receipt, allows for the time stamp to be authenticated, by using information in the time stamp receipt, without further communication with a time stamping authority.

Furthermore, the combination of Haber et al and Takura et al does not teach that the binding step includes computing a hash value on a combination of identifying data and said time indication. Levine et al teaches the use of hashing algorithms to bind time indication information and identifying data (col 4 ln 1-8). Binding the identifying data and time indication data is a manipulation of digital data. The use of hash algorithms to produce such a binding of data into a representation is well known in the art. It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to combine the teachings of Levine et al within the combination of Haber et al and Takura et al because it would have added another way of binding the information for the time stamp receipt. Hash algorithms are well known in the art to produce a secure fingerprint of data. Computing a hash value as part of the binding step may increase the security of the time stamp from unwanted activity.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Haber et al, How To Time-Stamp a Digital Document, disclose how to time stamp a digital document using a hash algorithm.

Stefik et al, US Patent 5,638,443, discloses validating the time stamp receipt with the current time.

Blandford, US Patent 5,189,700, discloses binding the identifying data and time indication data by encryption.

Nissl et al, US Patent 6,530,023, disclose validating the time before time with another time source before time stamping the document.

Aissenberg et al, US Patent 6,209,090, disclose computing the age of the document according to the time stamp.

Bergadano et al, US Patent 6,574,627, discloses the generation of message authentication codes with secret keys.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allen S. Wu whose telephone number is 703-305-0708. The examiner can normally be reached on Monday-Friday 9am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ayaz Sheikh can be reached on 703-305-9648. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-0900.

Allen S. Wu
Examiner
Art Unit 2131

ASW

AYAZ SHEIKH
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